

Unit 1 Review Key

1) $13 - 12 \div (2+2) \cdot 3 - 3$

$$13 - 12 \div 4 \cdot 3 - 3$$

$$13 - 9 - 3$$

$$\textcircled{1}$$

2) $4\sqrt{25} \div (9-4) \cdot 2$

$$20 \div 5 \cdot 2$$

$$4 \cdot 2$$

$$\textcircled{8}$$

3) $48 \div 12 \cdot 2$

$$4 \cdot 2$$

$$\textcircled{8}$$

4) $\frac{1}{4}(21+3) \div 3 + 6$

$$\frac{1}{4}(24) \div 3 + 6$$

$$6 \div 3 + 6$$

$$2 + 6$$

$$\textcircled{8}$$

5) $\frac{10(5-6)}{2} + 5 = \frac{10(-1)}{2} + 5 = \frac{-10}{2} + 5 = -5 + 5$

$$\textcircled{0}$$

6) $8 + 3(4-1) = 8 + 3(3) = 8 + 9 = \textcircled{17}$

7) $10 - \{22 \div [2 + (3 \cdot 3)]\}$

$$10 - \{22 \div 11\}$$

$$10 - 2$$

$$\textcircled{8}$$

8) $(3-8)^2 + (4-3 \cdot 2)$

$$(-5)^2 + (4-6)$$

$$25 - 2$$

$$\textcircled{23}$$

9) $(4n^2 - 6n + 3) - (7n + 3 - 8n^2)$

$$4n^2 - 6n + 3 - 7n - 3 + 8n^2$$

$$\boxed{12n^2 - 13n}$$

10) $5x^3 + 4x^2 + x$

$$11) 4(c+2b) - 3(2c+b)$$

$$4c + 8b - 6c - 3b$$

$$\boxed{-2c + 5b}$$

$$12) x^5 + x^3 + x^2$$

No like terms.

Cannot be simplified further

$$13) (-9v^2 - 8u) + (2uv - 2u^2 + v^2) + (-v^2 + 4uv)$$

$$-9v^2 - 8u + 6uv - 2u^2$$

$$14) \frac{1}{4}(12x - 4y) - \frac{1}{3}(3x - 12y)$$

$$3x - y - x + 4y$$

$$\boxed{2x + 3y}$$

$$15) 3x + 7 = -5x$$

$$\begin{array}{r} -3x \quad -3x \\ \hline 7 = -8x \\ \frac{7}{-8} = \frac{-8x}{-8} \end{array}$$

$$\boxed{x = -\frac{7}{8}}$$

$$16) 2(x-3) + x = 4x+2$$

$$2x - 6 + x = 4x + 2$$

$$\begin{array}{r} 3x - 6 = 4x + 2 \\ -3x \quad -3x \\ \hline \end{array}$$

$$\begin{array}{r} -6 = x + 2 \\ -2 \quad -2 \\ \hline \end{array}$$

$$\boxed{-8 = x}$$

$$17) 5x + 6 = 36$$

$$\begin{array}{r} -6 \quad -6 \\ \hline 5x = 30 \\ \frac{5x}{5} = \frac{30}{5} \end{array}$$

$$\boxed{x = 6}$$

$$18) 6x + 2 = 5x - 4$$

$$\begin{array}{r} -5x \quad -5x \\ \hline \end{array}$$

$$\begin{array}{r} x + 2 = -4 \\ -2 \quad -2 \\ \hline \end{array}$$

$$\boxed{x = -6}$$

$$19) \frac{2}{3}x + 5 = 7$$

$$\begin{array}{r} -5 \quad -5 \\ \hline \end{array}$$

$$\frac{2}{3}x = 2$$

$$\frac{3}{2} \cdot \frac{2}{3} x = 2 \cdot \frac{3}{2}$$

$$\boxed{x = 3}$$

$$20) \frac{V}{\pi r^2} = \frac{\pi r^2 h}{\pi r^2}$$

$$\boxed{\frac{V}{\pi r^2} = h}$$

$$21) V \cdot D = \frac{M}{V} \cdot V$$

$$\frac{VD}{D} = \frac{M}{D}$$

$$\boxed{V = \frac{M}{D}}$$

$$22) \frac{a(b-c)}{b-c} = \frac{d}{b-c}$$

$$a = \frac{d}{b-c}$$

$$23) 3 \cdot A = \frac{x+y}{3} \cdot 3$$

$$3A = x+y$$

$$\boxed{x = 3A - y}$$

$$24) y = \frac{1}{4}x - 12$$

$$4 \cdot y + 12 = \frac{1}{4}x - 4$$

$$\boxed{4(y+12) = x}$$

$$25) 6(6v+6) - 5 = 1+6v$$

$$36v + 36 - 5 = 1 + 6v$$

$$36v + 31 = 1 + 6v$$

$$30v + 31 = 1$$

$$30v = -30$$

$$26) -3(4r-8) = -36$$

$$-12r + 24 = -36$$

$$-12r = -60$$

$$\boxed{r = +5}$$

$$27) -4k + 2(5k-6) = -3k-3$$

$$-4k + 10k - 12 = -3k - 3$$

$$6k - 12 = -3k - 3$$

$$9k - 12 = -3$$

$$\frac{9k}{9} = \frac{9}{9}$$

$$\boxed{k = 1}$$

$$28) \cancel{12}(2k+11) = \cancel{12}(2k+12)$$

$$2k + 11 = 2k + 12$$

$$11 = 12 \quad \text{Not possible}$$

$$\boxed{\rightarrow \text{no solution}}$$

$$29) 4\sqrt{40} \quad \begin{array}{r} 40 \\ \boxed{4} \overline{) 10} \end{array}$$

$$4\sqrt{4}\sqrt{10}$$

$$4 \cdot 2\sqrt{10}$$

$$\boxed{8\sqrt{10}}$$

$$30) \sqrt{68} = \sqrt{4}\sqrt{17}$$

$$\begin{array}{r} \boxed{4} \overline{) 17} = \boxed{2\sqrt{17}} \end{array}$$

$$31) \sqrt{\frac{9}{49}} = \frac{\sqrt{9}}{\sqrt{49}} = \boxed{\frac{3}{7}}$$

$$32) \sqrt{90a^2} = \sqrt{90}\sqrt{a^2}$$

- 90

$$\begin{array}{r} \boxed{9} \overline{) 10} \end{array}$$

$$\sqrt{9}\sqrt{10}\sqrt{a^2}$$

$$\boxed{3a\sqrt{10}}$$

$$33) \sqrt{121x^3y} = \sqrt{121}\sqrt{x^3}\sqrt{y}$$

$$\begin{array}{r} x^3 \\ \boxed{x^2} \overline{) x} \end{array}$$

$$= \sqrt{121}\sqrt{x^2}\sqrt{x}\sqrt{y}$$

$$\boxed{11x\sqrt{xy}}$$

* 35 not on test

$$36) \frac{9}{\sqrt{13}} \cdot \frac{\sqrt{13}}{\sqrt{13}} = \boxed{\frac{9\sqrt{13}}{13}}$$

$$37) \frac{10}{5\sqrt{3}} \overset{\substack{\text{simplified} \\ \text{fraction}}}{\downarrow} = \frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \boxed{\frac{2\sqrt{3}}{3}}$$

* 38 not on test

$$39) 5n + 12$$

$$40) 6(2+x)$$

$$41) n^3 - 10$$

$$42) 5x$$

$$43) 9(6-x)$$